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EXAMINER

STERRETT, JONATHAN G

ART UNIT	PAPER NUMBER
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3623

DATE MAILED: 04/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/828,710

Applicant(s)

EL HOMSI, ALEXANDRE

Examiner

Jonathan G. Sterrett

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 April 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Summary

1. Claims 1-34 are pending in the application. The instant application deals with a rule based search engine for workflow applications. More specifically the invention deals with searching within a matrix organization for the appropriate resource to perform a specific workflow task in the execution of a workflow management system. This is accomplished through the application of rules, definitions of the hierarchy of an organization, both from a roles and resource definition standpoint, escalation and delegation mechanisms, and the ability of the search engine to use the combination of these to identify the most appropriate resources.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 1-5** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Du US 6,308,163**.

Regarding **Claim 1**, Du teaches:

a) identifying an organizational unit where said resource x belongs,

Column 7 line 46-38, each resource is identified into an organizational unit through mapping by a Line Resource Manager (LRM). This takes place across the enterprise.

b) identifying all super roles of said role F, if no super roles exist;

Column 7 line 33-35, databases identify all roles.

Column 12 line 46-59, knowledge of roles exist at Strategic Resource Manager (SRM) and Enterprise Resource Manager (ERM) levels.

Figure 9, Role hierarchy of resources is identified, including super roles of a given role in hierarchy.

c) returning best matching resource as x if role F is a hierarchical role, else;

Column 13 line 7-9, connections between virtual nodes and resource types enables the finding of resources – nodes map the hierarchy of roles.

Column 13 line 30-32, RQL, RPL and RDI used to return best matching resource based on criteria and constraints in language, line 46-49, example of programming code and location of 'mexico'.

d) iteratively identifying a parent role from said list of super roles;

Column 12 line 53-58, nodes map out the hierarchy of roles, including identifying a parent role from a list of super roles.

Column 13 line 7-9, nodes have resources mapped to them

Figure 6 #164, method uses iteration to navigate role nodes to find resources.

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e) identifying a current role R from said iteratively identified parent role;

Column 12 line 53-58, nodes map out the hierarchy of roles, including identifying current roles from parent roles

f) identifying in said organizational unit all resources, other than said resource x, that has said current role R, and if there is at least one identified resource, then, returning said identified resource(s) as best matching resource, else;

Column 13 line 7-9, connections between virtual nodes and resource types enables the finding of resources – nodes map the hierarchy of roles with the resources in an organizational unit, see figure 9.

Figure 6 #156, #166, "Find a Resource", method iteratively finds a resource.

g) identifying all servicing Organizational units for said current role R, and

Column 14 line 35-40, requests for resources can be pleaded up to the ERM's, which maintains knowledge of all roles in their organization, including for servicing organizations. The ERM can delegate the request down to a subordinate organization to the appropriate role.

Figure 3, #72, ERM's are linked to allow for communication of requests.

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Du teaches iteration to find appropriate resources (Figure 6 #164) and that finding eligible, available and the least loaded resources is the goal of workflow resource management.

Du does not teach:

h) repeating steps e-g, until all best matching resources are returned.

Official Notice is taken that repeating steps in iterative fashion is old and well-known in the art of performing methods.

It would be obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Du, regarding organization of hierarchical resources and roles in a workflow resource management system, to iterate across the hierarchy in order to find resources best matched for an activity, because it would provide an efficient means to locate resources in an organization.

Regarding Claim 2, Du teaches:

wherein if no servicing organizational units are found in step g, said method further implementing the following steps:

i) escalating the list of super roles and identifying a new current role

R;

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Column 14 line 35-40, requests are escalated up from SRM's to ERM's to identify best matching resources for a particular workflow task. See also Figure #2 and #3.

j) repeating said steps e-h for said new current role R and returning best matching resources, and

Figure 6 #164, requests can be returned to resource engine for a second attempt to find a resource.

k) identifying all parent organizational units (OUPs) of said organizational unit and repeating steps e-h with said OUPs as current organizational unit and returning best matching resources.

Column 14 line 35-40, As discussed above, Du teaches here that requests can be escalated up the organization. Figure 3 #68 to #66, requests can be passed to other ERM's also to return the best matching resources.

Regarding **Claim 3**, Du teaches escalating up and across the organization, as discussed above, to identify resources for a particular task and returning those resources as identified for that particular task.

Du does not teach identifying organizational units with a global role to which requests for finding matching resources can be sent to.

Official Notice is taken that enterprises, with hierarchical organizations can be organized in tiers to include a global organization. Examples of this include

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many well-known multinational corporations with world headquarters and operations in major continents and countries.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Du, to include returning identified resources for a global organization unit, because it would enable the workflow search for appropriate tasks to be efficiently conducted on a global scale.

Regarding **Claim 4**, Du teaches

wherein said matrix organizational model is a three-dimensional model comprising the following axes:

organizational unit, title hierarchy, and functional roles.

Column 7 line 14-15, SRM views may be based upon organizational boundaries.

Column 11 line 47-48, title hierarchy exists between, for example an engineer and a programmer and between an engineer and an analyst – see also Figure 8. Title hierarchy also exists between LRM's, SRM's and ERM's – see Figure 2 & 3.

Column 4 line 55-63 – organizational groups represented by ERM's.

Regarding **Claim 5**, Du teaches:

wherein said method is network enabled,

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Column 2 line 56-60, computer network for running WFMS comprising multiple computers.

Du does not teach:

said network comprising any of the following: local area network (LAN), wide area network (WAN), Internet, HTTP-based network, or PSTN/PBX network.

Official Notice is taken that it is old and well known in the art for the computer network taught by Du to include the Internet.

It would have been obvious to one of ordinary skill in the art to modify the teachings of Du, regarding running a WFMS on a computer network, for that computer network to comprise the internet, because it would provide a readily available and efficient way to network computers to accomplish distributed WFMS capability.

6. Claims 6-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Du US 6,308,163** in view of **Du US 5,826,239**

Regarding **Claim 6**, Du teaches:

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a) one or more databases storing information regarding design elements required for creating an application, definitions of organizational models, and workflow rules;

Column 10 line 64-65, the process repository is populated by imported process models created by business managers and analysts.

Column 10 line 61-62, WFMS uses at least one repository of business process rules.

Column 10 line 60-61, database of policy and resource schema comprise a definition of organizational models.

b) a search engine interfacing with said one or more databases and utilizing stored information to determine workflow routing in said matrix organizational model,

Column 9 line 23-25, resource request received at control engine.

Figure 6 #164, query returned to resource engine to determine resource.

Figure 5 #144 & #146, resource engine contains query processor and discovery model.

Column 11 line 5-6, stored policy rules are consulted in determining abandonment or processing – these policy rules are stored in the database of policy and resource schema (Figure 5 #170).

c) a router receiving workflow requests, and directing said workflow requests to appropriate recipients based on said search engine determinations.

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Figure 5 #122, control engine directs workflow requests to appropriate recipients #129 (see column 9 line 40-42).

Figure 4 #110, Query routing includes for resource requests.

Du does not teach:

a router polling said one or more databases to retrieve workflow requests.

Du 5,826,239 teaches:

a router polling said one or more databases to retrieve workflow requests.

Column 7 line 55-57, HP OpenPM Database is maintained on server.

Column 7 line 63-67, status information and load information can be queried – line 67—column 8 line 7

Column 10 line 19-21, business objects, defines something active in the business domain – these objects are stored in a database.

Column 10 line 48-52, business activities (tasks) and business objects (resources) are mapped at runtime by the resource manager.

It would have been obvious to one of ordinary skill in the art to combine the teachings of Du US 6,308,163 regarding the hierarchical mapping of resources and roles in a workflow management system, with polling a database to retrieve

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workflow requests, as taught by Du US 5,826,239, in order to automate and make efficient the mapping of workflow activities to resources at runtime.

Claims 7-8 recites limitations already addressed by the rejection of Claims 1-6 above, therefore the same rejection applies

Regarding **Claim 9**, Du teaches:

wherein information regarding said design elements in said organizational model are imported in any one of, or a combination of, the following ways:

via a local database, via a remote database, imported from an address book or **imported from another organizational model.**

Column 10 line 64-66, process repository is populated by imported process models created by business managers and analysts.

Claim 10 recites limitations already addressed by the rejection of Claim 5 above, therefore the same rejection applies.

Regarding **Claim 11**, Du teaches:

wherein said search engine is a rules based search engine.

Column 11 line 5-6, stored policy rules are consulted in determining abandonment or processing – these policy rules are stored in the database of policy and resource schema (Figure 5 #170).

Regarding **Claim 12**, Du teaches:

wherein said one or more databases with definitions of organization models further comprises definitions of hierarchy, structure and function associated with organization models.

Figure 5 #170, Policy and Resource schema contains definitions of hierarchy structure and function associated with organization models since it determines workflow routings and resource schema.

Regarding **Claim 13**, Du 6,308,163 does not teach:

wherein said system further comprises a statistical analyzer providing a complete statistical analysis of workflow processing including means for tracking workflow cycles by date, event, requestor, or workflow actor.

Du 5,826,239 teaches:

wherein said system further comprises a statistical analyzer providing a complete statistical analysis of workflow processing including means for tracking workflow cycles by date, event, requestor, or workflow actor.

Column 1 line 55-59, collection of statistical data for process and resource bottleneck analysis, flow optimization and workload balancing would include means for tracking workflow cycles by date, event, requestor, or workflow actor.

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It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Du 6,308,163 regarding workflow resource management as discussed above, to include the teachings of Du 5,826,239 regarding statistical analysis of workflow processing because it would optimize the allocation of resources using a workflow system.

Regarding **Claim 14**, Du teaches:

wherein said system further comprises an automated delegation system that allows users to delegate tasks for re-routing events for temporary process changes.

Column 11 line 65—column 12 line 2, requests can be delegated automatically to those below a resource in the hierarchy, including for re-routing events for temporary process changes.

Regarding **Claim 15**, Du 6,308,163 does not teach:

wherein said router is a JAVA servlet.

Du 5,826,239 teaches:

wherein said router is a JAVA servlet.

Column 10 line 31-36, workflow activities represented by business objects.

Column 10 line 48-52, runtime manager, which is an object, coordinates between business activities and resources.

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Du teaches using objects to manage the routing of requests to resources, including but not limited to a Java servlet to manage the routing of requests to resources.

Regarding **Claim 16**, Du 6,308,163 does not teach:

wherein said workflow rules are stored in a separate database.

Du 5,826,239 teaches:

wherein said workflow rules are stored in a separate database.

column 19 line 19-21, most workflow systems have their own decision making facilities – i.e. rule engines. This makes complicated resource allocation depending on different locations possible, since each resource manager would have their own rule engine (and associated database).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Du 6,308,163, regarding workflow resource management, to include the teachings of Du 5,826,239 regarding workflow rules being stored in a separate database, because it would allow for individual resource managers to have their own resource allocation and request routing based on the specifics of their particular locations.

Regarding **Claim 17**, Du 6,308,163 does not teach:

wherein said workflow management is externalized from applications created using said information in said one or more databases.

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Du 5,826,239 teaches:

wherein said workflow management is externalized from applications created using said information in said one or more databases.

Column 8 line 5-11, interaction with the external world is performed by business object management modules (Figured 2 #30-33).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Du 6,308,163 regarding workflow resource management to include the teachings of Du 5,826,239 regarding externalizing workflow management from applications, because it would provide a way to improve reliability and scalability by distributing the workflow management and applications.

Regarding **Claim 18**, Du teaches:

wherein said definitions of organizational models further include definitions of functional links that extend said workflow process across organizations without defining hierarchical links.

Figure 8 shows an example of nodes within Du's workflow resource management approach that include definitions of functional links that extend said workflow process across (and within) organizations without necessarily defining hierarchical links.

Regarding **Claim 19**, Du teaches:

wherein said search engine follows as many links as needed to resolve said workflow requests by traversing a hierarchical tree of said organizational units in said organizational model, and identifying functional links to other organizations that service said organizational units.

Column 5 line 28-30, four layers (see figure 4) provide a response query algorithm (i.e. search engine) to map resources to workflow activities.

Figure 10 – a hierarchical tree of organizational units in an organizational model, however this tree can include--Figure 3 resource managers who are local and who have functional links to other organizations, including those that service said organizational units

Column 4 line 55-64 – tree hierarchy, SRM's at same level represent views in different organizations or within different physical boundaries such as a site manager who have elements of the HR function reporting to them at that site.

Claims 20-34 recite limitations already addressed by the rejection of Claims 1-19 above, therefore the same rejection applies.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 5490097 by Swenson discloses a system and method for modeling, analyzing and executing work process plans

US 5128860 by Chapman discloses a manufacturing or service system allocating resources to associated demands by comparing time ordered arrays of data.

US 5842173 by Strum discloses a computer-based surgical services management system.

US 5870545 by Davis discloses a system and method for performing flexible workflow process compensation in a distributed workflow management system discloses.

US 5874954 by Kilmer discloses a centricity-based interface and method

US 5890133 by Ernst discloses a method and apparatus for dynamic optimization of business processes managed by a computer system.

US 5911134 by Castonguay discloses a method for planning, scheduling and managing personnel.

US 5937388 by Davis discloses a system and method for performing scalable distribution of process flow activities in a distributed workflow management system

US 6003021 by Zadik discloses a system, method and article of manufacture for a simulation system for goal based education.

US 6006192 by Cheng discloses a method for production planning in an uncertain demand environment.

US 6041306 by Du discloses a system and method for performing flexible workflow process execution in a distributed workflow management system.

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US 6067531 by Hoyt discloses an automated contract negotiator/generation system and method.

US 6067548 by Cheng discloses a dynamic organization model and management computing system and method therefor.

US 6073109 by Flores discloses a computerized method and system for managing business processes using linked workflows.

US 20010032108 A1 by Sieron discloses a process automation system.

US 5189606 by Burns discloses a totally integrated construction cost estimating, analysis, and reporting system.

US 6327362 by Hull discloses a system and method including dynamic differential treatment in workflows and contact flow.

US 6349320 by Emberton discloses a computer executable workflow management and control system.

US 6349238 by Gabbita discloses a system and method for managing the workflow for processing service orders among a variety of organizations within a telecommunications company.

US 6405215 by Yaung discloses a workflow agent for a multimedia database system.

US 6519568 by Harvey discloses a system and method for electronic data delivery.

US 20030083917 A1 by Tracey discloses a method of managing workflow information

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US 6578006 by Saito discloses a project work management method and system.

US 5774661 by Chatterjee discloses a rule engine interface for a visual workflow builder.

"Workflow Management Coalition Terminology and Glossary", February 1999, pp.1-65.

Daft, Richard L, Management, 1991, 2nd Edition, Chapter 9, "Fundamentals of Organizing", pp.245-277.

Goldberg, Beverly; Sifonis, John G; "An alliance of business & technology", February 1994, Management Review, v83n2, pp.1-8.

Van der Aalst, W.M.P., "The application of Petri Nets to Workflow Management", 1998, citeseer.ist.psu.edu/vanderaalst98application.html, pp.1-53.

Grudin, Jonathan, "Groupware and social dynamics: Eight challenges for developers", Jan 1994, Communications of the ACM v37n1 PP: 92-105.

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan G. Sterrett whose telephone number is 703-305-0550. The examiner can normally be reached on 8-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tariq Hafiz can be reached on 703-305-9643. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JGS 4-1-2005


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